



ADA* for Roadway Design Incorporating PROWAG**

** Americans with Disabilities Act*

*** Public Rights of Way Accessibility Guidelines*

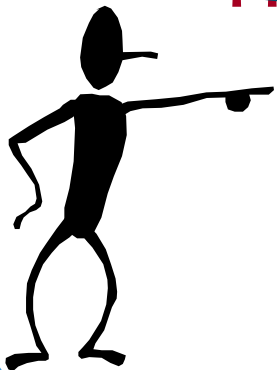
Dean Perkins, Architect ADA Coordinator
Florida Department of Transportation

Introduction

- Brief overview of ADA
- How ADA impacts roadway projects
- Features of Accessibility
- New Concepts
- Examples of roadway elements
 - Random images
 - Some good; some not so good
- How you can comply

Background of the ADA

- 1990 Americans with Disabilities Act
 - July 26, 1990 - signed
 - January 26, 1992 – effective date
 - July 1, 1994 – Revised ADA Standards.
 - July 26, 2004 – new ADA guidelines (ADA/ABA)
 - Nov 23, 2005 – new PROW guidelines (PROWAG)
 - **Nov 26, 2006 – FHWA adopts ADA Standards for Transportation Facilities (ADASTF)**
 - **July 23, 2011 – Access Board issues NPRM for PROWAG**
 - Latest News: “Final Rule” due out late 2016?
 - USDOT adoption in early-mid 2017???



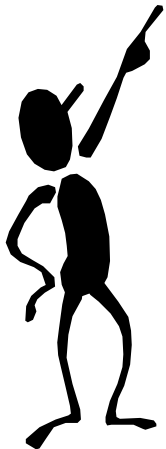
The Future of Facilities within Public Rights of Way(?)

USDOT / FHWA recommends using *PROWAG* criteria where *ADA Standards* do not address an issue.

RECOMMENDATION:

Start learning *PROWAG*!

www.access-board.gov/prowac/nprm.htm



Transportation... ..

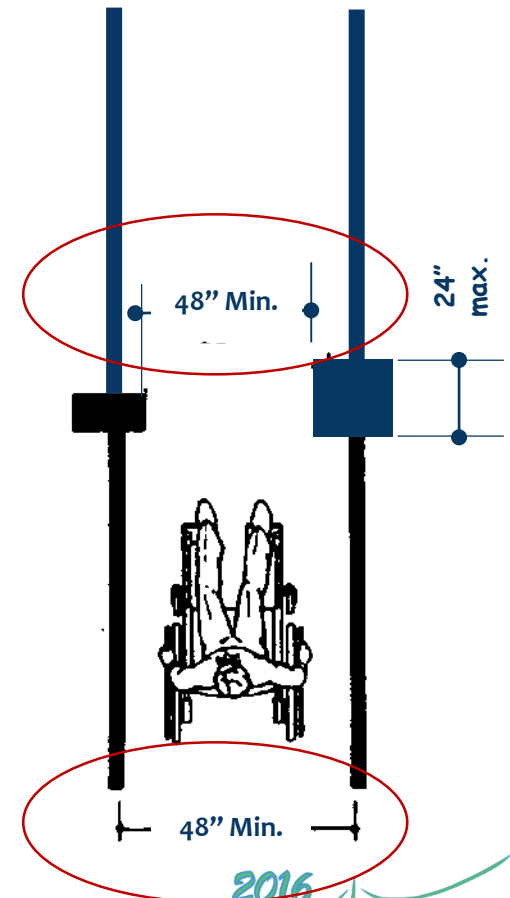


Roadside Accessibility

- Accessible Route Requirements
(*PROWAG – Pedestrian Access Route*)
 - Widths
 - Running slopes
 - Cross Slopes
 - Surfaces
 - Changes in Level
 - Gaps / Grates
 - Protruding Objects
 - Signs & Equipment, Landscape Materials, etc.

Accessible Route (AR) & Pedestrian Access Route (PAR)

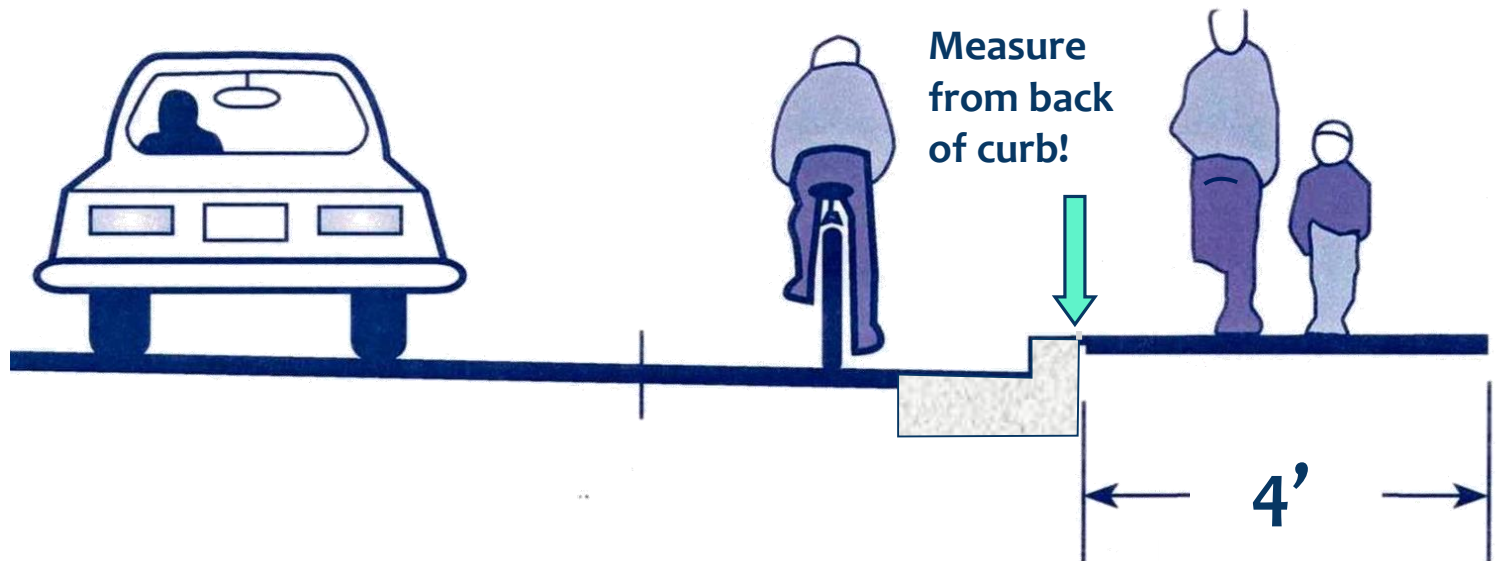
- AR = 36" continuous unobstructed path
 - **PAR = 48" (FDOT Std. & PROWAG)**
- AR = 32" min. at a 'point' (24" max.)
 - **PAR = 48" (FDOT Std. & PROWAG)**
- 60" x 60" passing space @ 200'
- Slopes:
 - $\leq 1:20$ ($\leq 5\%$) is not a ramp
 - $> 1:20$ ($> 5\%$) is a ramp
 - 1:12 (8.33%) max. allowed *
- Cross-slope
 - 1:50 (2%) max. allowed *
 - 1:75 (1.5%) best practice



* Exceptions in PROWAG

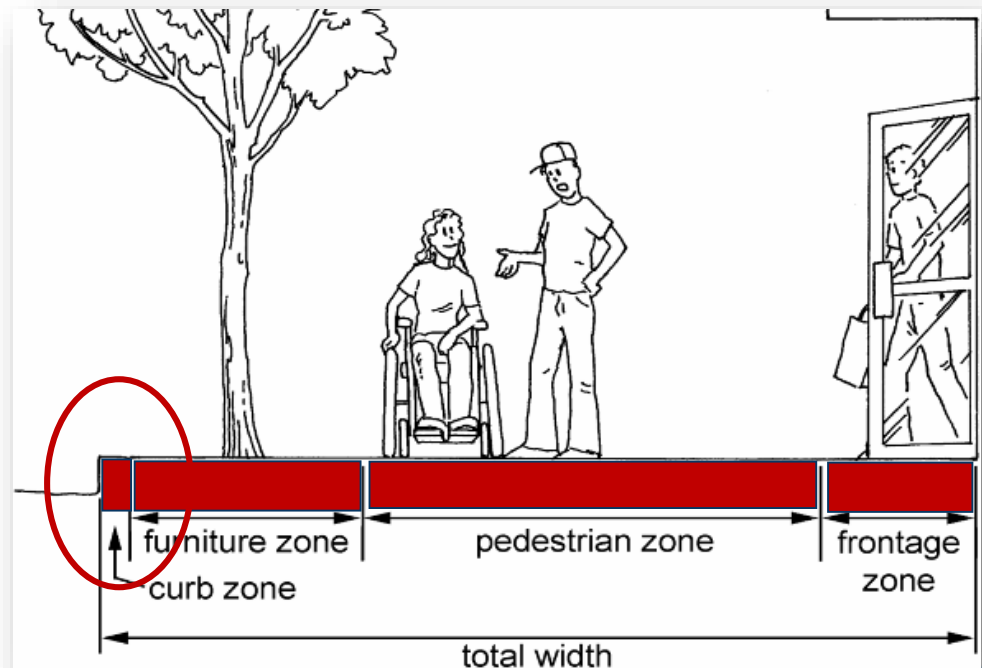
Pedestrian Access Route (PAR)

- R302.3 Continuous Width
 - The minimum continuous and unobstructed clear width of a pedestrian access route shall be 4 ft., exclusive of the width of the curb

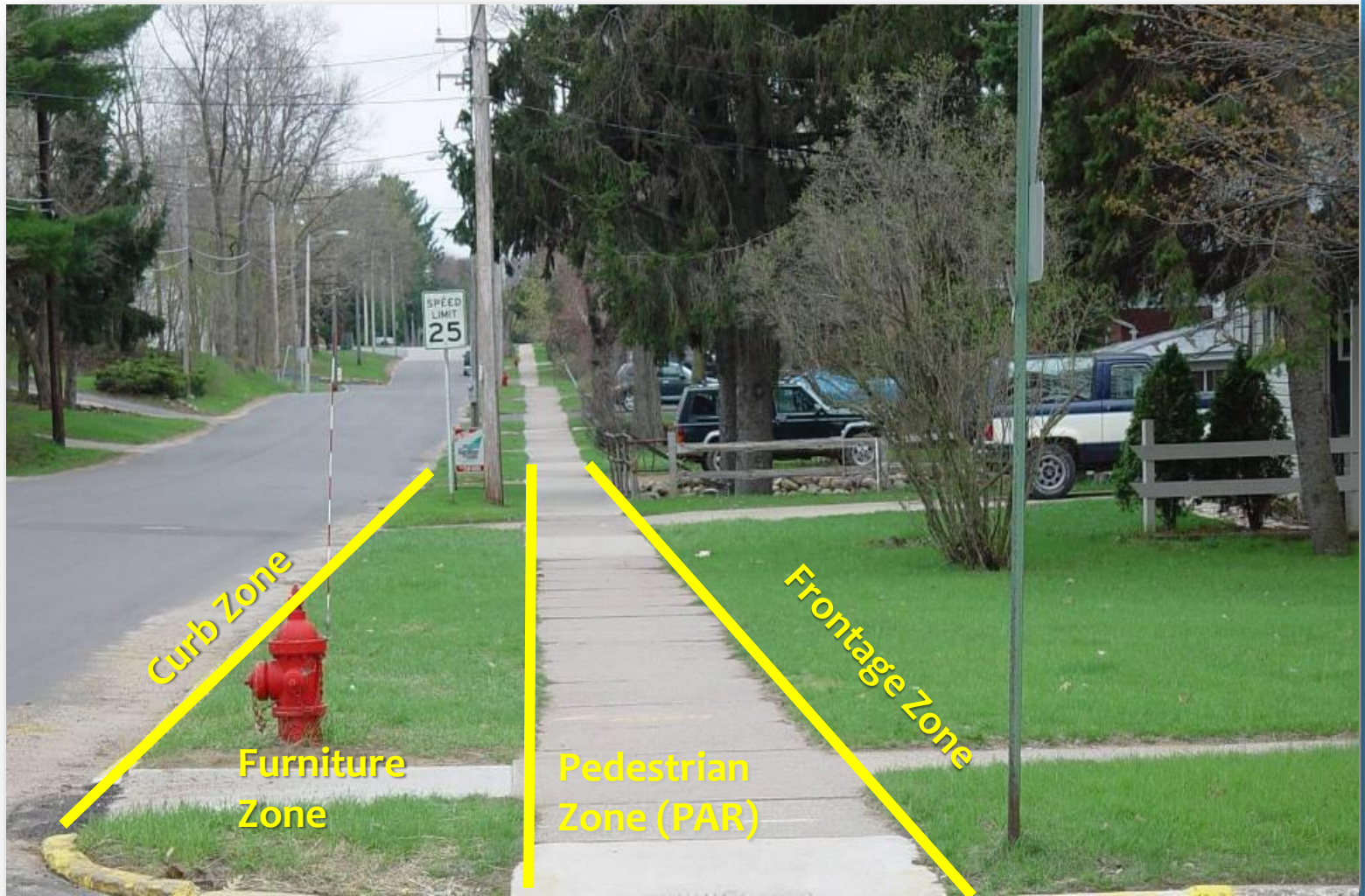


The Sidewalk 'Zone' System

- Curb Zone
- Furniture Zone
- Pedestrian Zone (PAR)
- Frontage Zone



Zone System: Residential

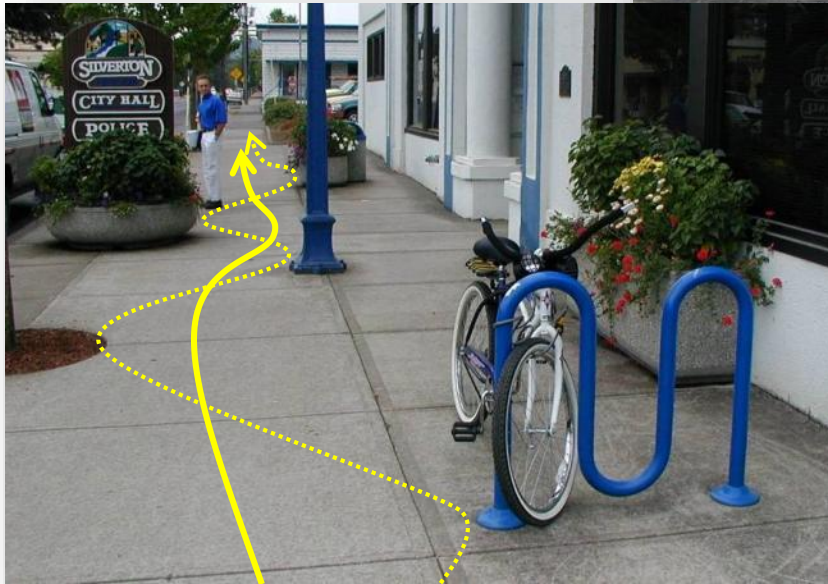


Zone System: Commercial



Furniture Zone

Carefully arranged street furniture leaves the sidewalk clear



Randomly arranged street furniture clutters the sidewalk and creates an 'obstacle course'

A difference between AR & PAR!

For sidewalks within the public right of way . . .

Sidewalk grade – **ADASTF** vs. **PROWAG**

- **ADASTF**: Provide accessible route (AR)
- **PROWAG**: Match roadway grade (PAR)

ADASTF



PROWAG



Ramps – “supported slopes” i.e., Bridges

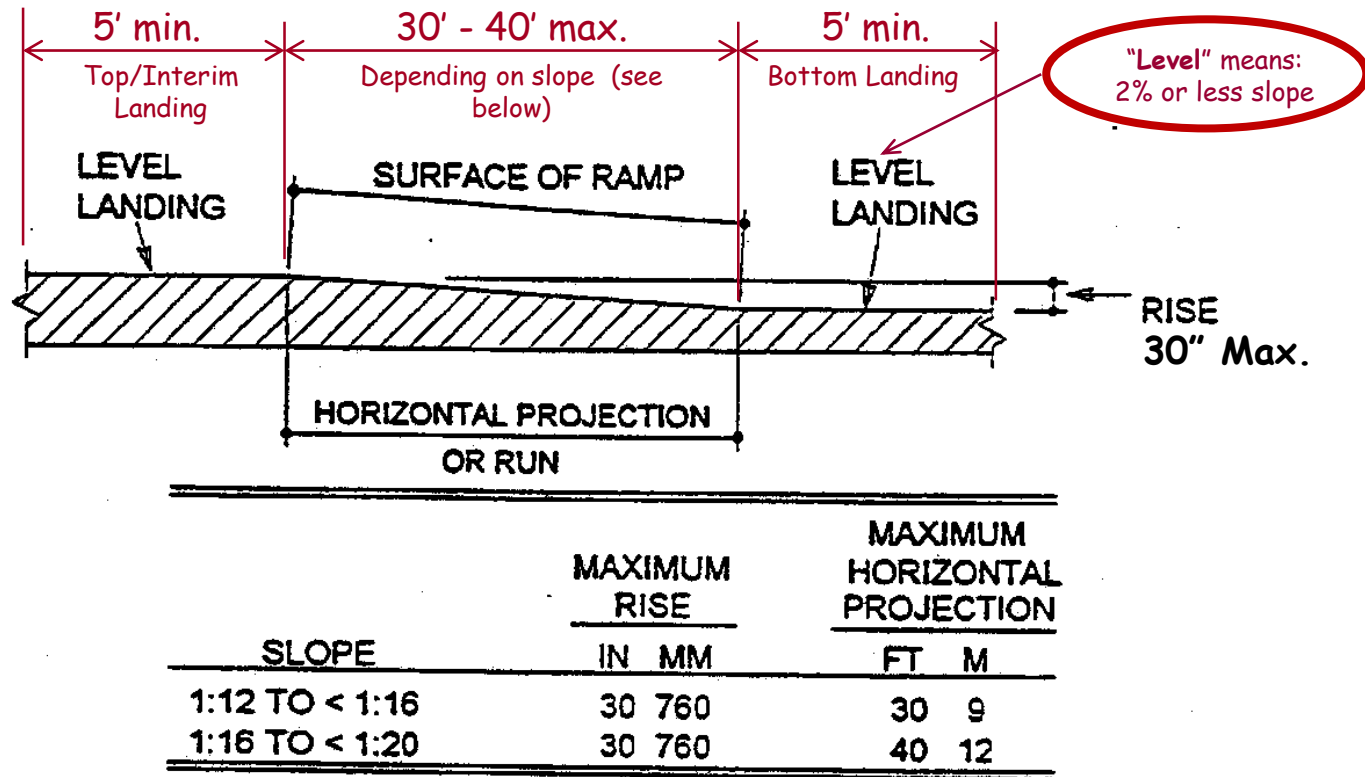
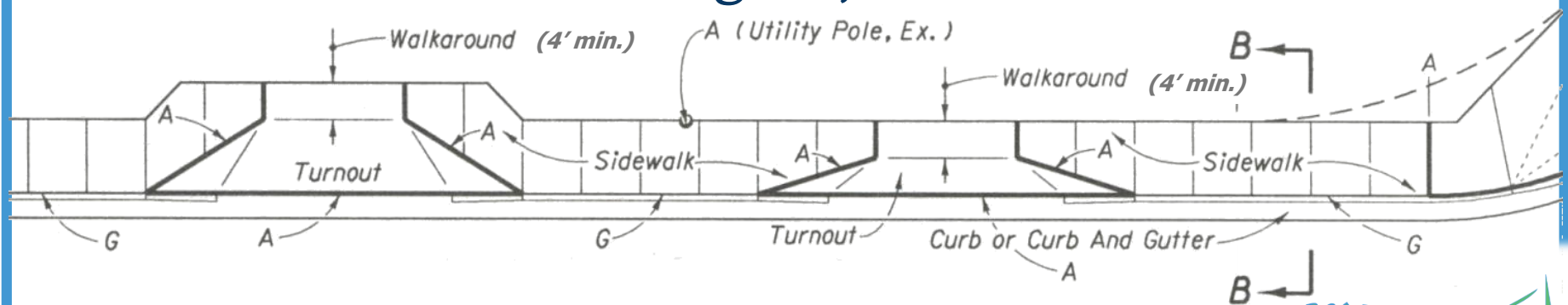


Fig 16
Components of a Single Ramp Run and Sample Ramp Dimensions

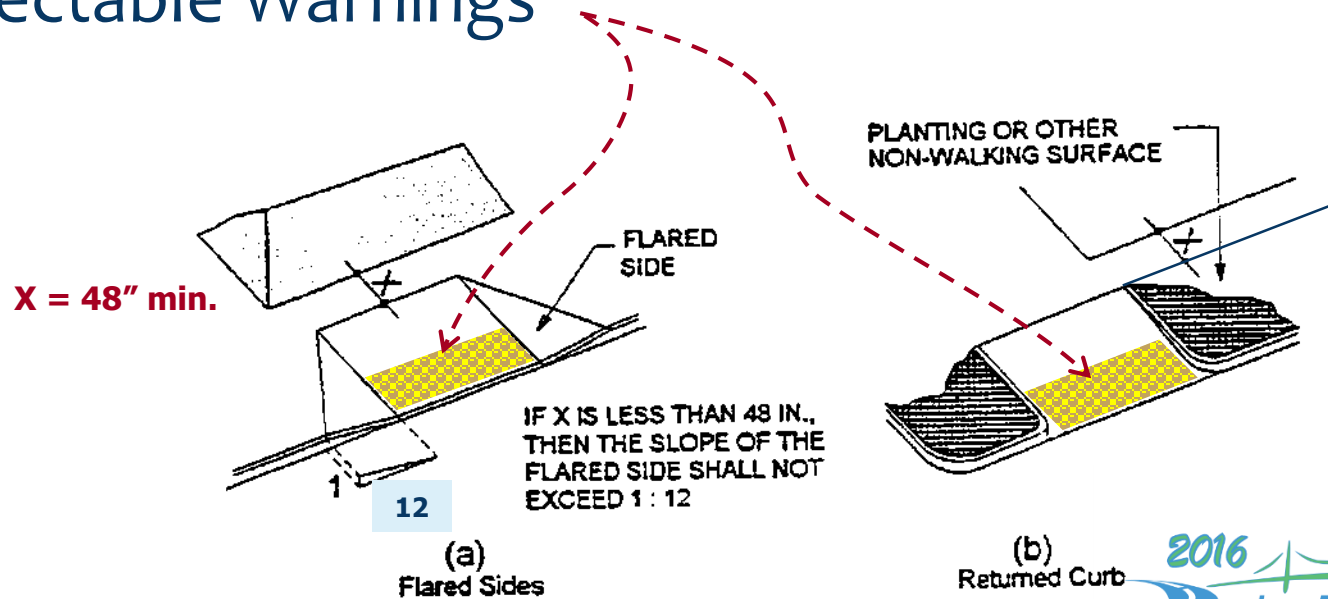
Sidewalks

- Are Pedestrian Access Routes (PAR)
 - 48" min. width
 - FDOT Design Standards – Index 310
 - PROWAG – Section R302
- Cross-slopes – 1:48 / 2% max.
- Check Surfaces – “Firm, Stable, Slip-resistant”
- Look for Level changes – $\frac{1}{4}$ " / $\frac{1}{2}$ "
- Look for Protruding Objects – 27"-80"



Curb Ramps

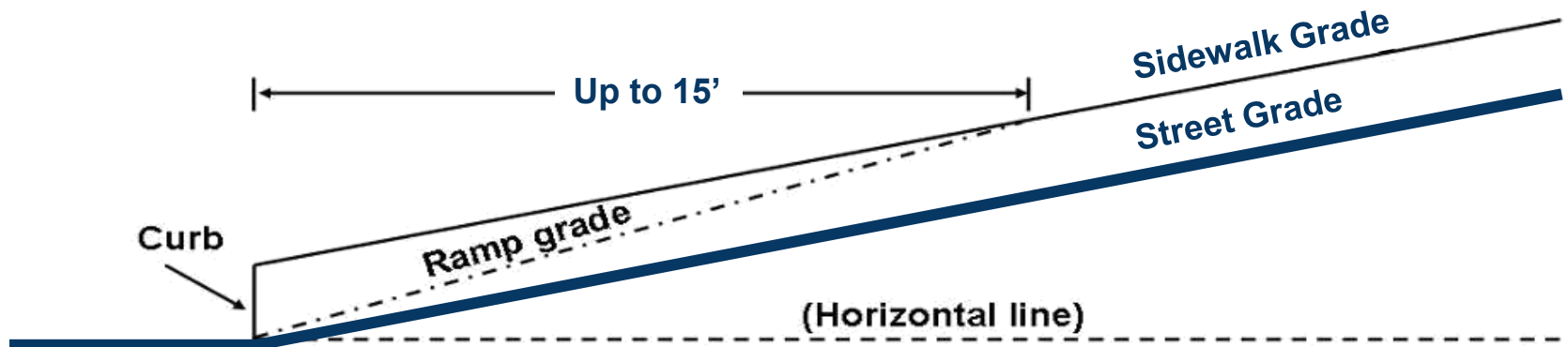
- Running Slopes (1:12 / 8.3% max.)
- Cross-slopes (1:48 / 2% max.)
- Landing at top (48" min.)
- Detectable Warnings



Curb Ramp Grade

R304

- Least slope possible is preferred
- Recommended maximum grade to allow for construction tolerance – 7.1%
- Maximum grade – 8.3%
- Exception: when “chasing grade,” curb ramp length need not exceed 15’, but slope must be uniform

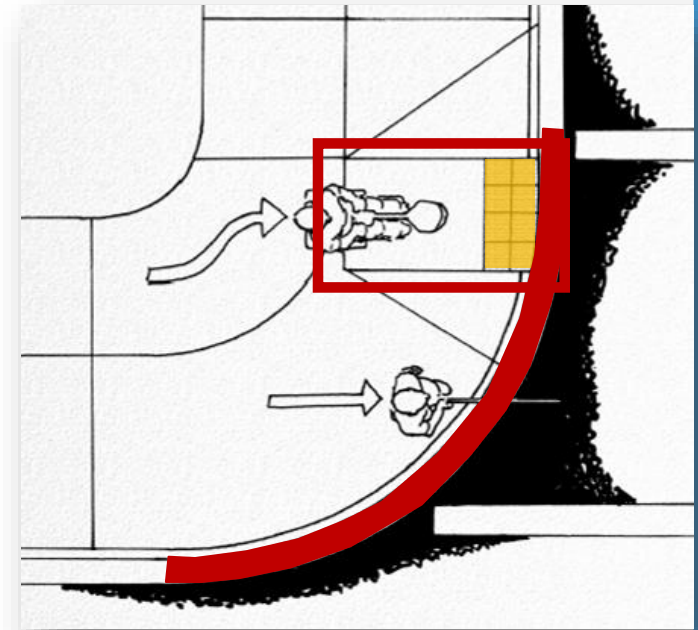


Transportation.....



Curb Ramps and Detectable Warnings

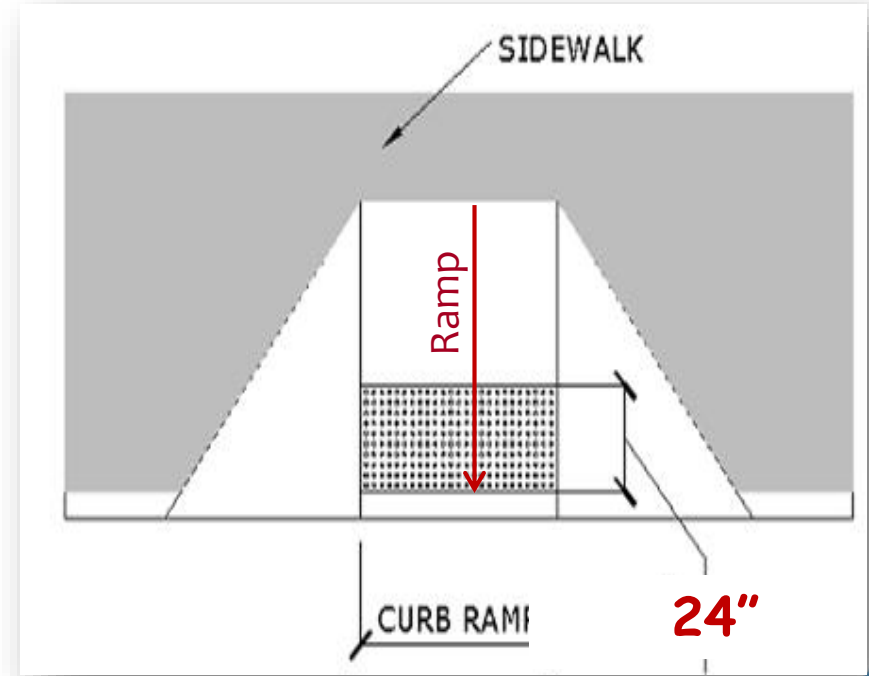
- Curbs are an 'edge cue' for pedestrians who are blind or have low vision
- Curbs are a barrier for persons in wheelchairs
- Curb ramps remove the barrier for wheelchairs
- Curb ramps remove the edge cue for pedestrians with vision impairments
- Detectable warnings are a replacement cue to indicate location of the street



Perpendicular Curb Ramps

R305.2.1

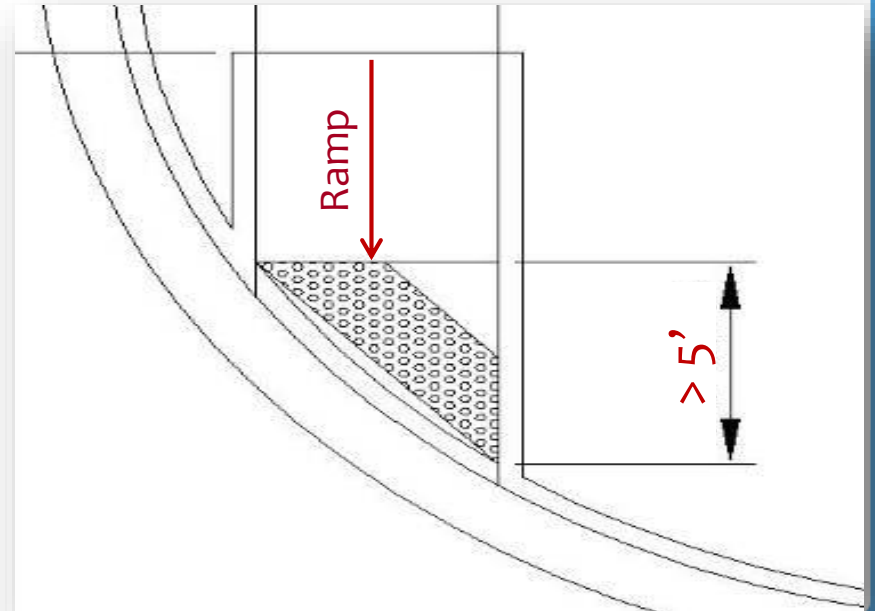
- Perpendicular Curb Ramp
 - Place DW at back of curb or at grade break



Directional/Linear Ramps

R305.2.1

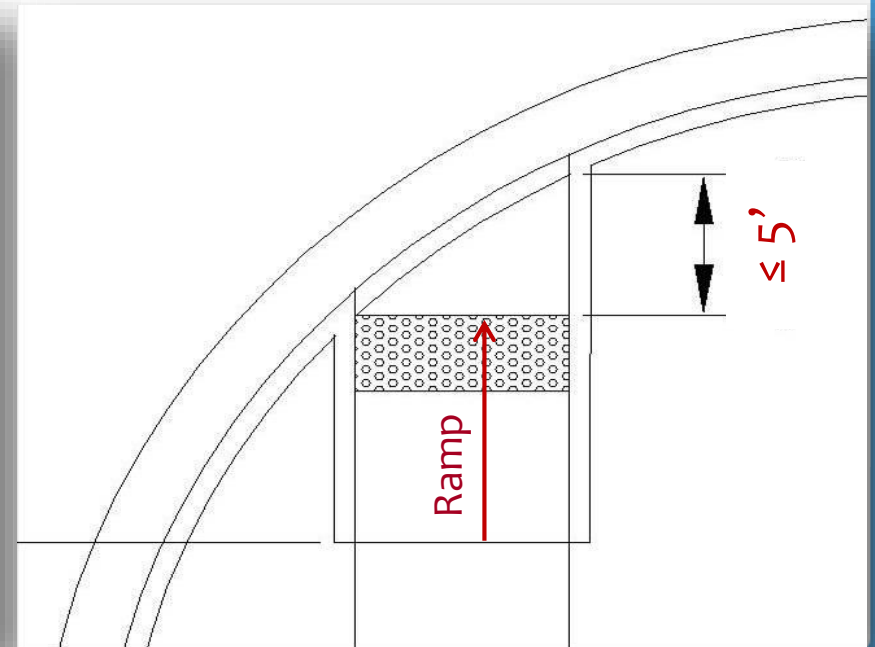
- Greater than 5 feet setback . . .
 - Place DW on bottom landing if level landing is more than 5' deep at any point



Directional/Linear Ramps

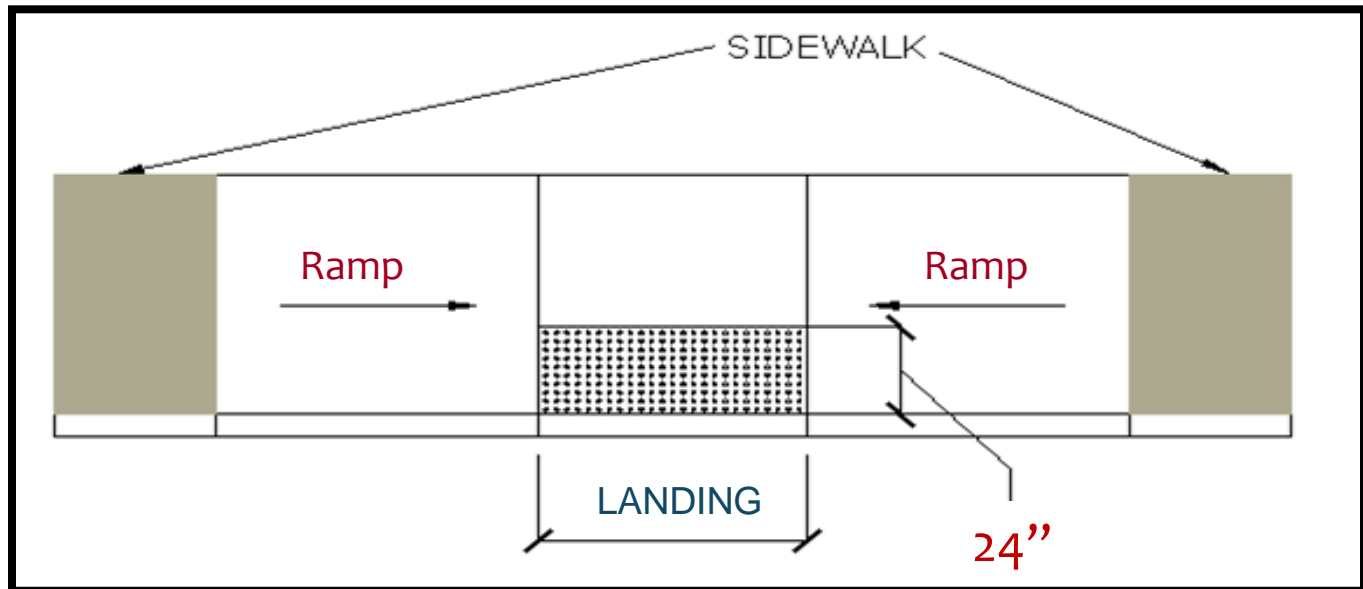
R305.2.1

- Equal to or less than 5 feet setback from bottom of curb ramp . . .
 - Place DW at grade break if level landing at bottom of ramp is 5' deep or less



Parallel Ramps

R305.2.2



Detectable warning = 'Stop sign'

- Delineates the edge of the street
 - Does replace missing edge cue (i.e., curb) for a pedestrian who is blind or visually impaired
 - Does not designate the best place to cross
 - Does not provide alignment information

Detectable Warning Alignment

To align or not to align . . .

- Detectable warnings ‘warn’ of roadway edge
- DW alignment generally *NOT* used as directional cue
 - Other methods: traffic sounds, return curbs, APSs, etc.
- In a perfect world, all detectable warnings would be aligned with crossing
 - Easier to construct
 - Easier to use
- However . . .
 - Not all curb ramp configurations and site conditions permit DW alignment

Detectable Warning Alignment

To align or not to align . . .

- So...
 - Dome alignment is desirable, but not required



Perfect World

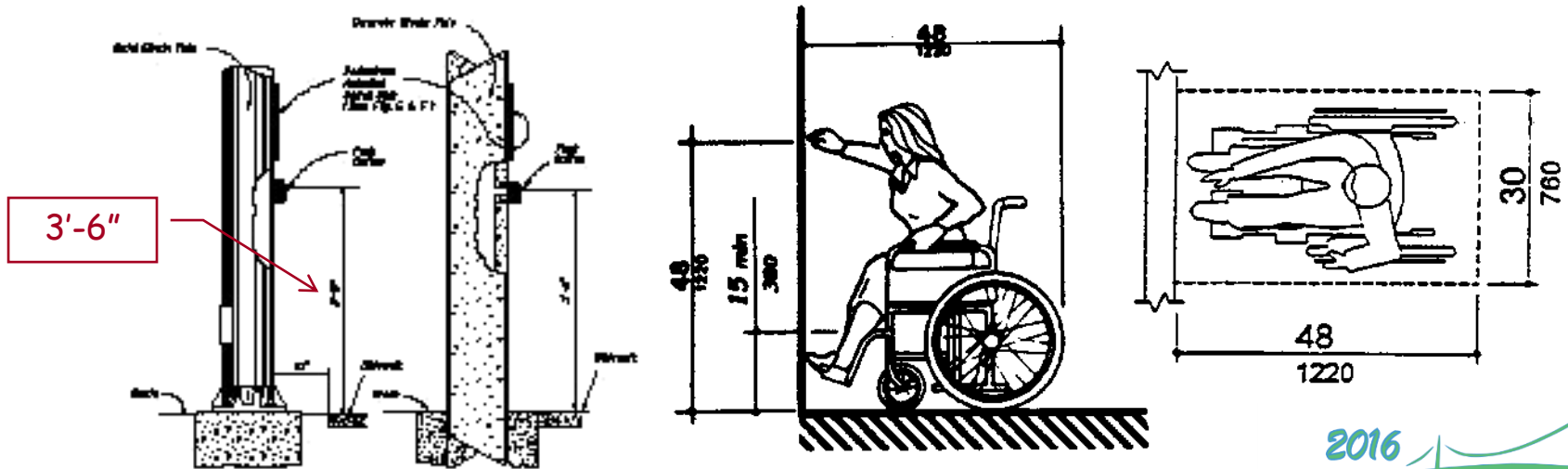


Real World

Pedestrian Controls

R306 & MUTCD 4E.06

- In reach ranges (48" max.)
 - **42" FDOT Standard**
 - 10" max. reach - over obstruction/edge of sidewalk
 - 2" dia. raised buttons
- Maneuvering space (30" x 48" min., level)



Accessible Pedestrian Signals

MUTCD 4E.09-4E.13

- For pedestrians with vision impairments
- Used in conjunction with pedestrian signal timing
- Add “non-visual” information:
 - Tactile features
 - Audible tones
 - Vibrating surfaces
 - Speech messages
- Must indicate which crossing is served by each device



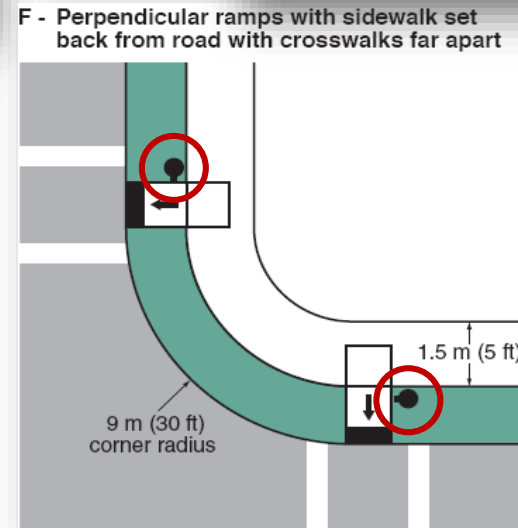
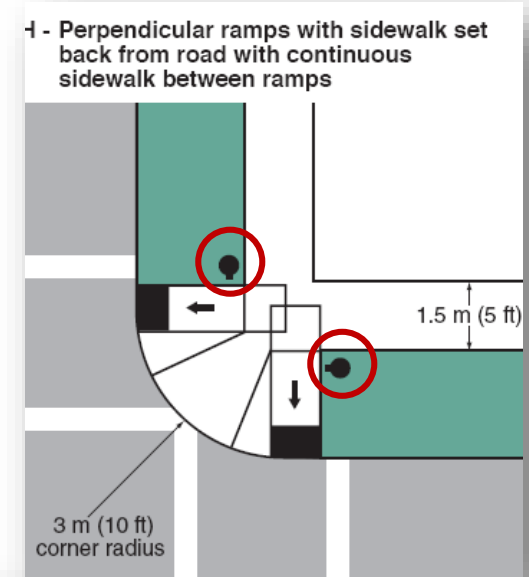
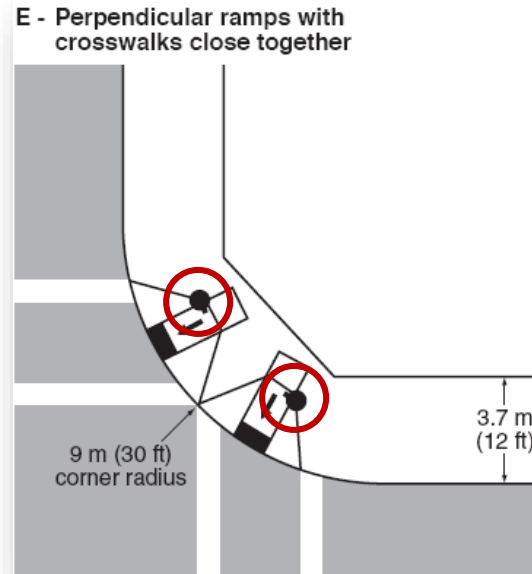
Accessible Pedestrian Signals



Speakers

Pushbutton Locations

R403 & MUTCD 4E



- NOTE: It must be clear which button controls which crossing. (per MUTCD).
- If APSs cannot be placed at least 10' apart, they must 'speak' to you.

Pedestrian Crossings

R306



- Cross Slope of crossing:
 - ‘STOP’ or “YIELD”- controlled: 2% max.
 - Traffic signal or no control: 5% max.
 - Mid-block: Match grade of roadway





This is who we are working for

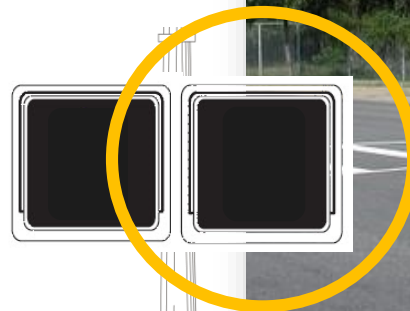


- **RRFB**
- Rectangular Rapidly Flashing Beacon
- Upon activation of push button...

HAWK

Pedestrian Hybrid Beacon

- Stays dark for vehicles and solid 'hand' for pedestrians until activated, then...
- **For vehicles:**
 1. Flashing **Yellow** light,
 2. Solid **Yellow** light,
 3. Solid **Red** lights
 4. Alternating **Red** lights,
 5. Then dark
- **For pedestrians:**
 1. Solid **Hand**,
 2. Solid **Hand**,
 3. Solid **Walk**,
 4. Flashing **Hand**
 5. Solid **Hand**



Bus Stops

R308

- When siting a new bus stop...
 - Must be on PAR
 - 48" min.
 - 60" recommended
 - This may be sidewalk or paved shoulder
 - Must have accessible approach to bus stop
 - 48" min. width – 60" recommended
 - Leads to / part of boarding & alighting area
 - Meets running slope/cross slope criteria
 - Firm, stable & slip-resistant
 - Must consider potential construction of boarding and alighting area & other features



Bus Stops

- ***If provided*** – Boarding & Alighting area:

- Place for bus lift/ramp to deploy
- “Firm, stable and slip-resistant” surface (ADAS & PROWAG)

- “Firm and stable” surface (ADASTF)

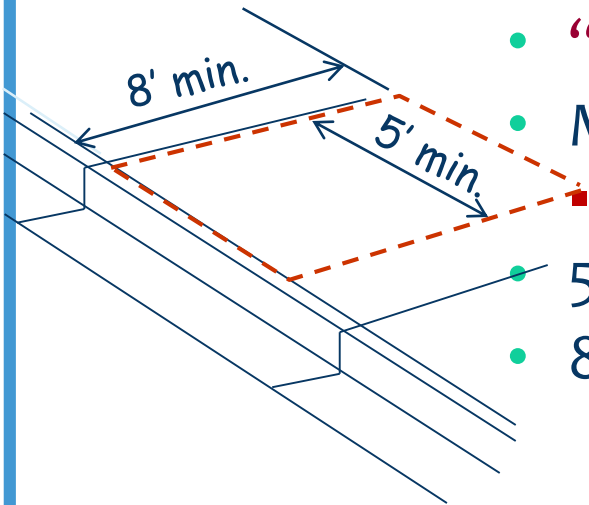
- Must connect to streets, sidewalks, etc.

- Sidewalks, shoulders, curb ramps, etc.

- 5' min. width – parallel to roadway

- 8' min. depth – perpendicular to roadway

5' x 8' B&A area



NOTE:

If low-floor, ramp-equipped bus is used, the B&A area should be raised (curb height).

Rural bus stops

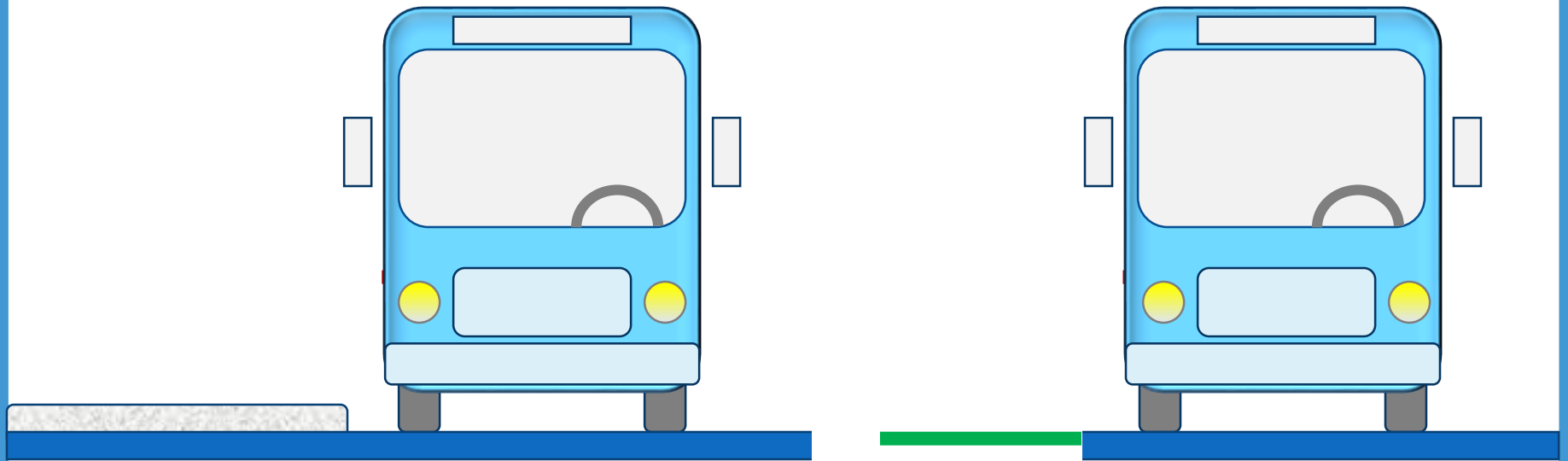
- Primary Issues:
 - Flush shoulder – No curb/gutter
 - Shoulder is sloped away from the roadway
 - Most ‘kneeling’ buses are designed to deploy front ramps onto 6” high curbs
 - 1:4 max. slope allowed on ramp deployed on curb (ADAASTV*)
 - Use on flush shoulder causes ramp to be too steep for safe use

** ADAASTV = ADA Accessibility Specifications for Transportation Vehicles*

- 1:4 when ≤ 3 ” above 6” curb
- 1:6 when > 3 ” ≤ 6 ” above 6” curb
- 1:8 when > 6 ” ≤ 9 ” above 6” curb
- 1:12 when > 9 ” above 6” curb

Bus Ramp & Lift Design

High-floor bus with lift at rear door

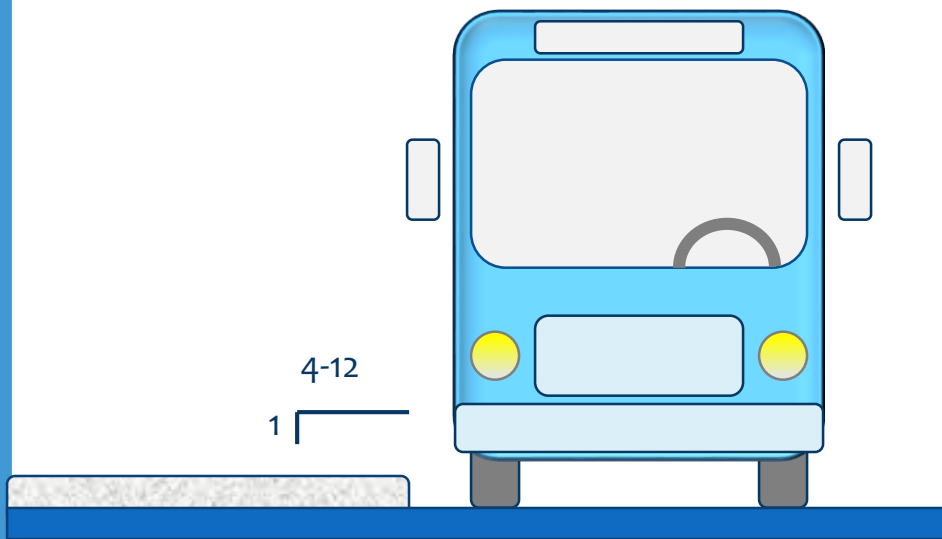


Lift – May be deployed on 6” high curb or at ground level – level platform.

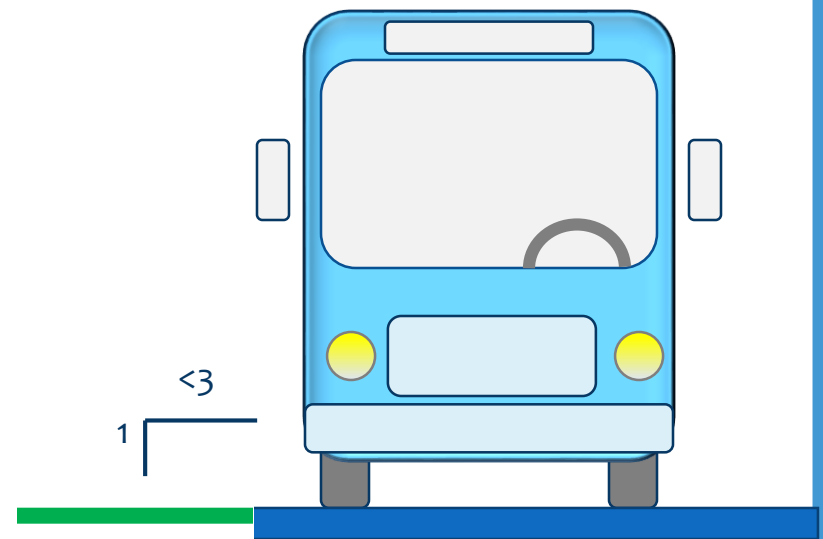
Bus Ramp & Lift Design

Low-floor bus with ramp at front door

Probably the most common



Ramp: Designed to be deployed on 6" high curb to provide 1:4 or less slope. (Max. allowed under ADAASTV)



Ramp: Deployed at ground level is too steep – 1:3 slope steeper.

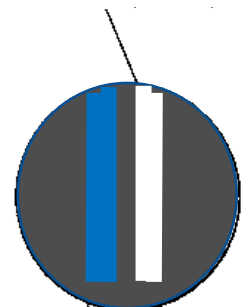
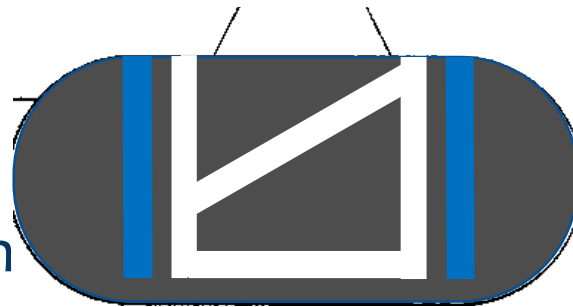
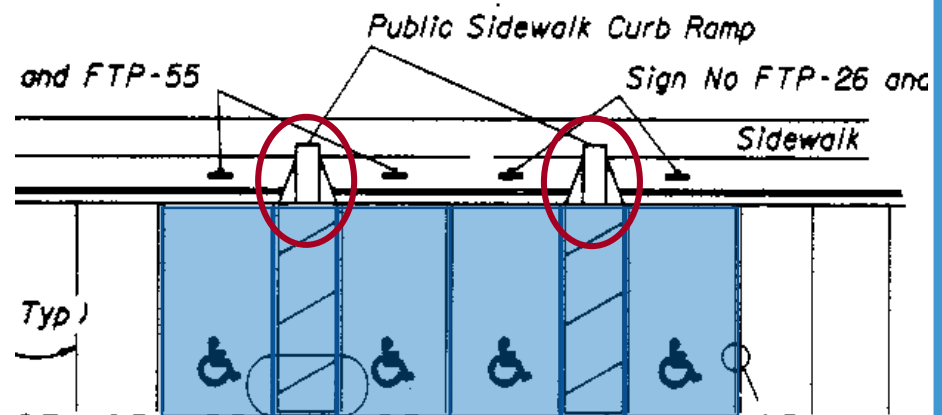
Rural bus stops



Parking



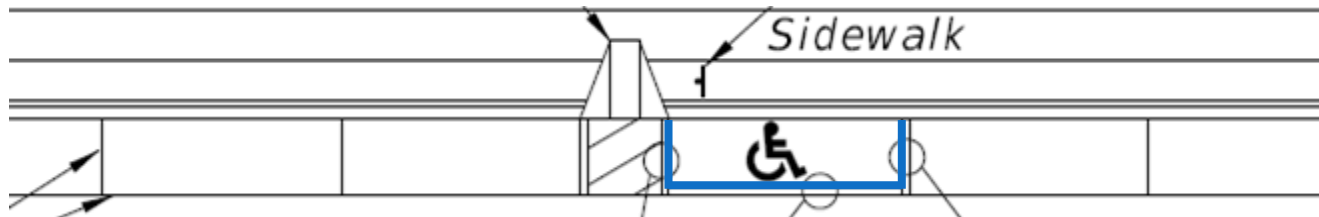
- Accessible space
 - Width = 12'-0" min.
- Access aisle
 - Width = 5'-0" min.
- Curb ramp
 - Outside space & aisle
- Slopes
 - 1:48 max. any direction



On-Street Parking Spaces

R214 & R309

- Accessible on-street parking space per block perimeter – approx. 4% of total
 - Table R214
- Parking spaces are best located where the street has the least crown & grade and close to key destinations (i.e., near crosswalks)



Alternate Pedestrian Routes

R205 & R303 & MUTCD 6D & 6G

- Alternate Pedestrian Access Routes are required when existing pedestrian access routes are blocked by construction, alteration, maintenance, or other temporary condition.

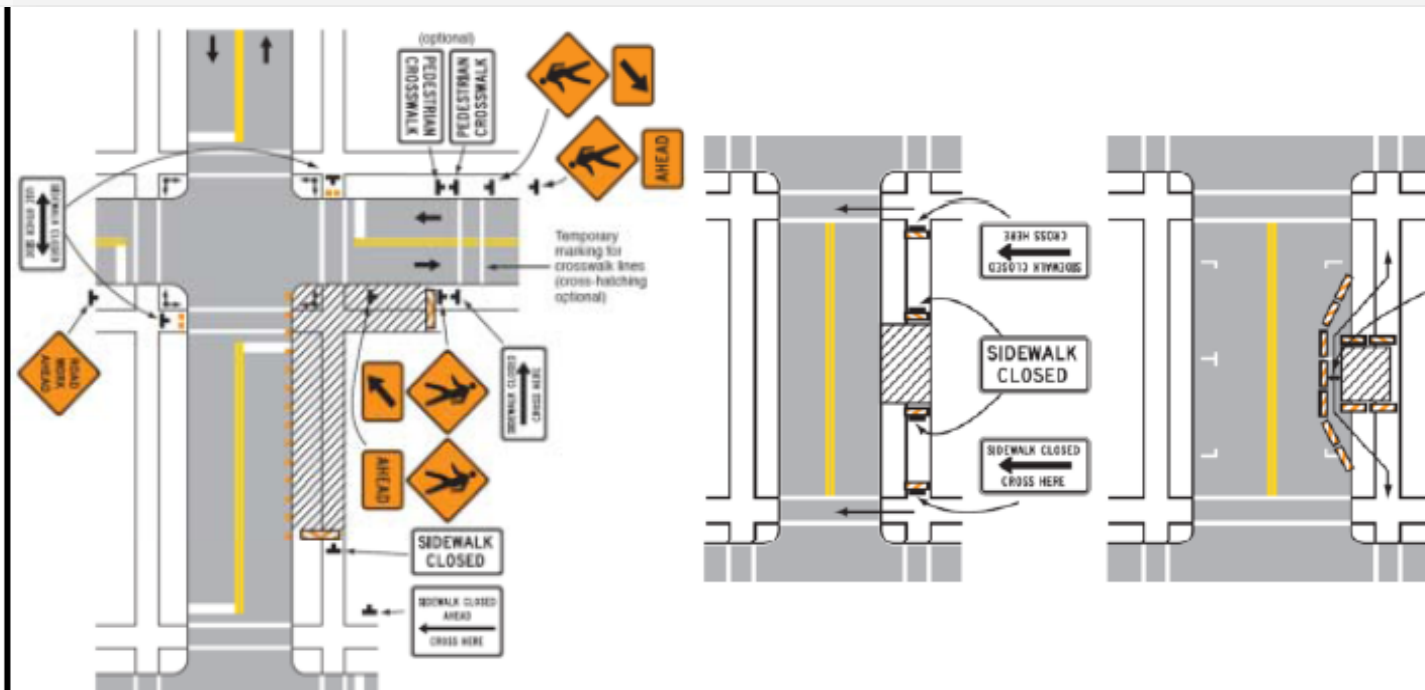


You should be using these...

Alternate PARs



Especially, this one!



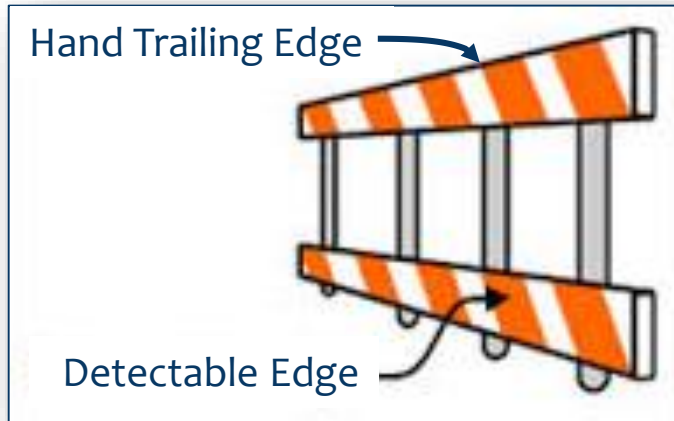
References Part 6 of the MUTCD

See similar requirements in FDOT Index 660

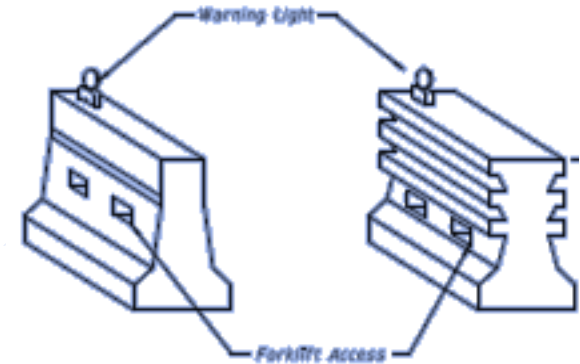
Alternate PARs

- R205 specifies that the alternate pedestrian access route shall be:
 - Provided on the same side of the street as the disrupted route, to the maximum extent feasible
 - Where exposed to adjacent construction, traffic or other hazards, shall be protected with a pedestrian barricade or channelization device
 - Continuous, stable, non-flexible
 - Consist of features identified in the **MUTCD** Chapter 6F
 - **Plastic tape is not acceptable!!!**
 - **Rows of barrels and/or cones is not acceptable... unless they are connected by a continuous 'detectable' edge**

Longitudinal Channelizing Devices (LCDs)



12. For pedestrian longitudinal channelizing devices, the device shall have a minimum of 8" continuous detectable edging above the walkway. A gap not exceeding a height of 2" is allowed to facilitate drainage. The top surface of the device shall be a minimum height of 32" and have smooth connection points between the devices to facilitate hand trailing. The bottom and the top surface of the device shall in the same vertical plane. If pedestrian drop-off protection is required, the device shall have a footprint or offset of at least 2', otherwise the device must be 42" in height above the walkway and be anchored or ballasted to withstand a 200 lb. later point load at the top of the device.



LONGITUDINAL CHANNELIZING DEVICE

FDOT Design Standards
Index 600

Examples of LCDs



Vertical
Plane



≥32"

2"-8"



Construction Work Zones

- Unfortunately, too many bad examples...





Very good! Measure before you build (Identity withheld)

Random Images

- Some good
- Some not so good



This is what we want...



Not this . . .



Nice!



Well Done!

11/6/2000



Close... DW needs to be full width



Very Good!



Combination return curb and flared side



Full Width ... Good!



Ummm!



Looks good.
Might want to check that limb, tho'.



Very Good!



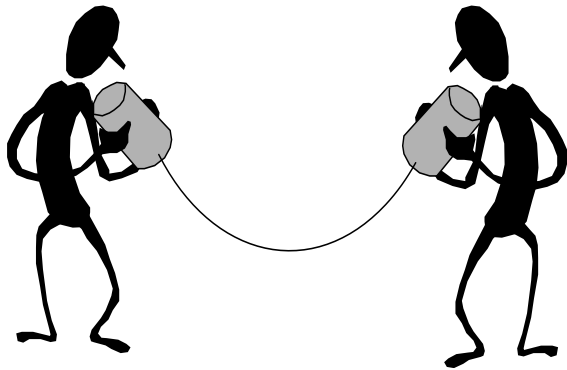


Very Good!



This CAN be fixed.

Contact us...



- **Dean Perkins, Architect**
- **ADA Coordinator**
- 850-414-4359
- dean.perkins@dot.state.fl.us
- **or**
- **Your District ADA Coordinator(s)**

Resources



U.S. Access Board

- Accessibility Guidelines - ADAAG
- www.access-board.gov



U.S. Dept. of Justice - ADA

- Accessibility Standards for Facilities & Sites
- www.ada.gov



U.S. Dept. of Transportation – FHWA

- Accessibility Guidance & Standards for Public Rights of Way
- www.dot.gov/citizen_services/disability/disability.html



Florida Dept. of Transportation - FDOT

- ADA information on Website
- <http://www.dot.state.fl.us/projectmanagementoffice/ADA/>

Thank You!

Merci! Todah Rabbah

Arigato!

Dhanya Vaad!

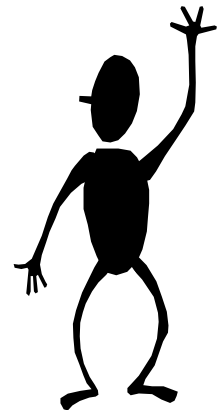
Xie Xie!

Gracias!

Shokran!

Danke!

LIVE LONG AND PROSPER!





What WERE they thinking!?!